

04/30/14 Agenda

Review Homework

- Check in NGA Review Worksheet
- Worksheet 2 - Graph Using AoS & Vertex
- Chapter 9 - Quadratic Functions & Equations
 - Day 3 - Solving Quadratic Functions by Graphing

Homework

- Worksheet 3 - Solve Quadratic Functions by Graphing

Unit 9 - Day 3 - Solving Quadratic Functions by Graphing

April 30, 2014

Graph using AoS & Vertex:

$$A = 1$$

$$B = 6 \quad y = x^2 + 6x + 8$$

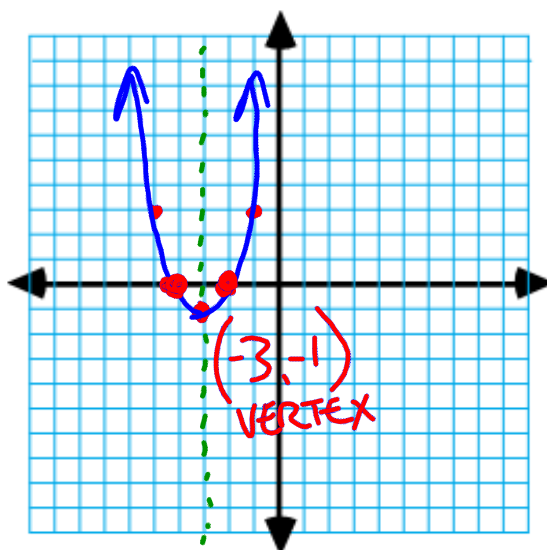
$$C = 8$$

AoS: $\frac{-b}{2a} = \frac{-(6)}{2(1)} = \frac{-6}{2} = -3$

$$x = -3$$

Vertex:

$$\begin{aligned} (-3, +1) \quad y &= x^2 + 6x + 8 \\ &= (-1)^2 + 6(-1) + 8 \\ &= 1 - 6 + 8 \end{aligned}$$



x	y
-2	0
-1	3

Now, we will finally SOLVE some Quadratic Functions!!!

Solutions are found at the ZEROS of the graph. (Where the graph crosses or touches the x-axis.)

What are the solutions of the function above?

$$x = -4 \quad \text{OR} \quad x = -2$$

SOLUTIONS = **ZEROS** = **ROOTS** = **X-INTERCEPTS**

<----- All the same thing!!! ----->

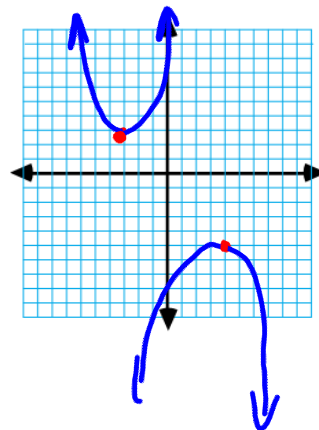
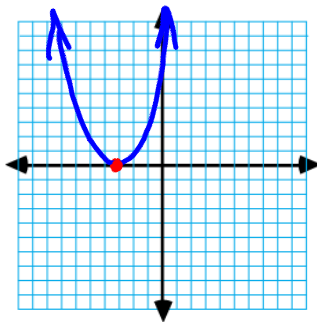
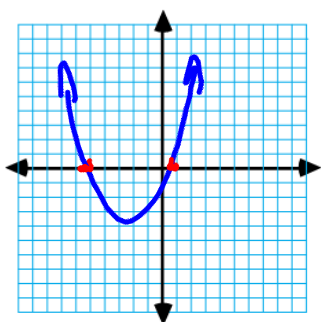
Unit 9 - Day 3 - Solving Quadratic Functions by Graphing

April 30, 2014

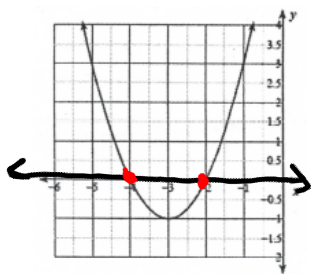
How many Solutions/Zeros/Roots/X-Intercepts could there be?

There could be....

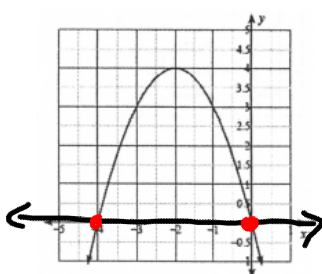
2 solutions OR 1 solutions OR 0 solutions



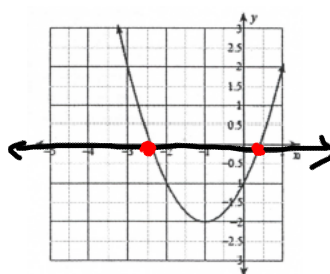
Find the solutions of each graphed quadratic function:



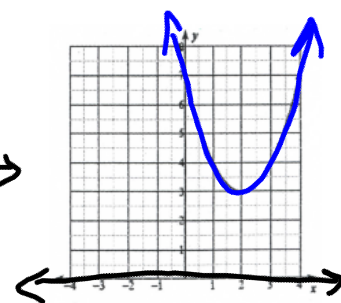
$x = -2$
 $x = -4$



$x = 0$
 $x = -4$



$x = -2.5$
 $x = 0.5$



NONE
NO ROOTS
NO ZEROS
NO SOLUTION

Unit 9 - Day 3 - Solving Quadratic Functions by Graphing

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$$Ax^2 + Bx + C$$

$$y = 3 - x^2 + 2x$$

$$\begin{matrix} A = -1 \\ B = 2 \\ C = 3 \end{matrix} \quad y = -x^2 + 2x + 3$$

$$AOS = \frac{-b}{2a} = \frac{-(2)}{2(-1)} = \frac{-2}{-2}$$

$$AOS \rightarrow x = 1$$

VERTEX

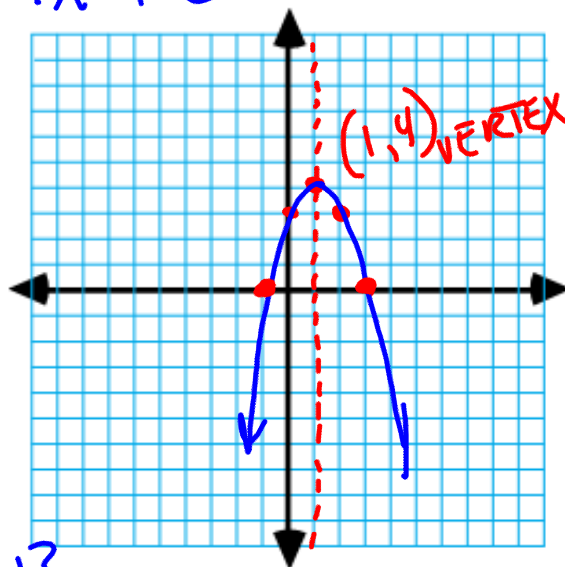
$$(1, 4) \quad y = -(-1)^2 + 2(-1) + 3$$

$$-1 - 2 + 3$$

Solutions:

$$x = 3$$

$$x = -1$$



x	y
0	3
-1	0

Unit 9 - Day 3 - Solving Quadratic Functions by Graphing

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$$y = 2x^2 - 8$$

$$\begin{aligned} A &= 2 \\ B &= 0 \\ C &= -8 \end{aligned}$$

$$AOS = \frac{-b}{2a} = \frac{0}{2(2)} = 0$$

$$AOS \rightarrow x = 0$$

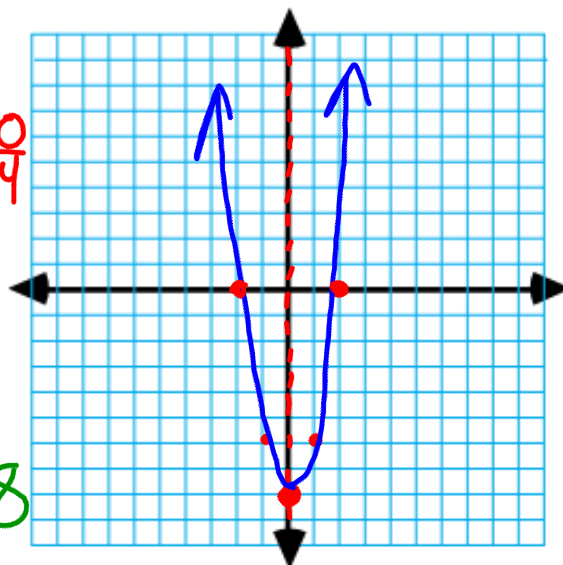
$$(0, -8)$$

X	Y
1	-6
2	0

$$y = 2x^2 - 8$$

$$y = 2(2)^2 - 8$$

$$8 - 8$$



Solutions:

$$x = 2$$

$$x = -2$$

$$x = \pm 2$$

Unit 9 - Day 3 - Solving Quadratic Functions by Graphing

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$$y = x^2 - 2x + 2$$

$$\begin{aligned} A &= 1 \\ B &= -2 \\ C &= 2 \end{aligned}$$

$$AOS = \frac{-(-2)}{2(1)} = \frac{2}{2}$$

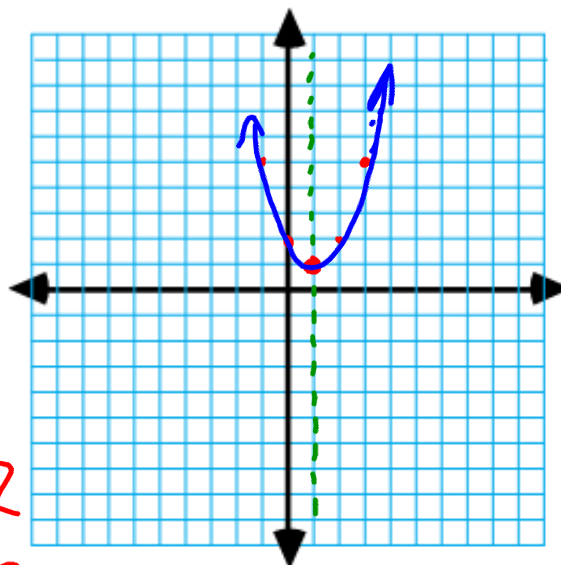
$$x = 1$$

Vertex (1, 1)

$$y = x^2 - 2x + 2$$

$$= 1^2 - 2(1) + 2$$

$$= 1 - 2 + 2$$



x	y
0	2
-1	5

Solutions: NONE